

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

AS22759/4

FEDERAL SUPPLY CLASS
6145

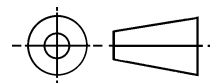
NOTICE

THIS DOCUMENT HAS BEEN TAKEN DIRECTLY FROM U.S. MILITARY SPECIFICATION MIL-W-22759/4C AND CONTAINS ONLY MINOR EDITORIAL AND FORMAT CHANGES REQUIRED TO BRING IT INTO CONFORMANCE WITH THE PUBLISHING REQUIREMENTS OF SAE TECHNICAL STANDARDS. THE INITIAL RELEASE OF THIS DOCUMENT IS INTENDED TO REPLACE MIL-W-22759/4C. ANY PART NUMBERS ESTABLISHED BY THE ORIGINAL SPECIFICATION REMAIN UNCHANGED.

THE ORIGINAL MILITARY SPECIFICATION WAS ADOPTED AS AN SAE STANDARD UNDER THE PROVISIONS OF THE SAE TECHNICAL STANDARDS BOARD (TSB) RULES AND REGULATIONS (TSB 001) PERTAINING TO ACCELERATED ADOPTION OF GOVERNMENT SPECIFICATIONS AND STANDARDS. TSB RULES PROVIDE FOR (A) THE PUBLICATION OF PORTIONS OF UNREVISED GOVERNMENT SPECIFICATIONS AND STANDARDS WITHOUT CONSENSUS VOTING AT THE SAE COMMITTEE LEVEL, AND (B) THE USE OF THE EXISTING GOVERNMENT SPECIFICATION OR STANDARD FORMAT.

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LISTS ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENT RELATING TO QUALIFIED PRODUCTS LISTS (QPL'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS SAE TECHNICAL DOCUMENT.

THIRD ANGLE PROJECTION



ISSUED 2000-09

PREPARED BY SAE SUBCOMMITTEE AE-8D

SAE The Engineering Society
For Advancing Mobility
INTERNATIONAL
Land Sea Air and Space®
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

WIRE, ELECTRIC, FLUOROPOLYMER-INSULATED,
TFE-GLASS-FEP, MEDIUM WEIGHT, SILVER-COATED
COPPER CONDUCTOR, 600-VOLT

AS22759/4
SHEET 1 OF 5

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) SPECIFIED IN THE SOLICITATION: MIL-W-22759.

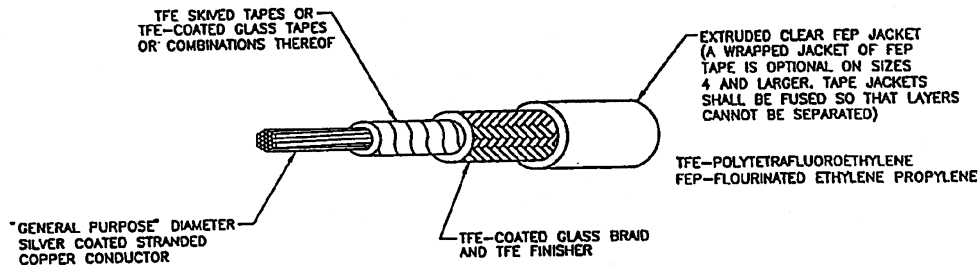


TABLE I. CONSTRUCTION DETAILS.

Part No. 1/	Wire size	Stranding (Number of strands x AWG gage of strands)	Diameter of stranded conductor (inches)		Finished wire			
			(min)	(max)	Resistance at 20°C (68°F) (ohms/1000 ft) (max)	Thickness of FEP jacket (inches)	Diameter (inches)	Weight (lbs/1000 ft) (max)
M22759/4-22-*	22	19 x 34	.029	.032	15.1	.009 ±.002	.074 ±.003	5.90
M22759/4-20-*	20	19 x 32	.037	.040	9.19	.009 ±.002	.082 ±.003	7.90
M22759/4-18-*	18	19 x 30	.046	.050	5.79	.010 ±.002	.095 ±.003	11.0
M22759/4-16-*	16	19 x 29	.052	.057	4.52	.010 ±.002	.103 ±.004	13.6
M22759/4-14-*	14	19 x 27	.065	.072	2.88	.010 ±.002	.116 ±.004	18.5
M22759/4-12-*	12	37 x 28	.084	.089	1.90	.010 ±.002	.133 ±.004	26.6
M22759/4-10-*	10	37 x 26	.106	.112	1.19	.010 ±.002	.164 ±.006	41.5
M22759/4-8-*	8	133 x 29	.158	.169	.658	.010 ±.002	.235 ±.007	77.4
M22759/4-6-*	6	133 x 27	.198	.213	.418	.010 ±.002	.282 ±.010	115.
M22759/4-4-*	4	133 x 25	.250	.268	.264	.012 ±.003	.351 ±.015	184.
M22759/4-2-*	2	665 x 30	.320	.340	.170	.012 ±.003	.430 ±.015	281.
M22759/4-1-*	1	817 x 30	.360	.380	.139	.014 ±.004	.480 ±.015	358.
M22759/4-01-*	0	1045 x 30	.395	.425	.108	.014 ±.004	.525 ±.025	436.
M22759/4-02-*	00	1330 x 30	.440	.475	.085	.014 ±.004	.585 ±.025	554.

1/ PART NO: The asterisks in the part number column, tables I through III, shall be replaced by color code designators in accordance with MIL-STD-681. Examples: Size 20, white - M22759/4-20-9; white with orange stripe - M22759/4-20-93.

TABLE II. PERFORMANCE DETAILS.

Part No.	Bend testing			Test load (lbs) (±3%)	
	Mandrel diameter (inches) (±3%)				
	Life cycle (oven and bend tests) <u>1/</u>	Cold bend test	Wrap test	Life cycle (oven and bend tests) <u>1/</u>	Cold bend test
M22759/4-22-*	.375	.50	.250	.75	2.0
M22759/4-20-*	.375	.50	.250	.75	2.0
M22759/4-18-*	.50	.75	.375	1.0	2.0
M22759/4-16-*	.50	.75	.375	1.0	3.0
M22759/4-14-*	.50	1.00	.50	1.0	3.0
M22759/4-12-*	.75	2.00	.50	3.0	3.0
M22759/4-10-*	1.00	3.00	.75	3.0	5.0
M22759/4-8-*	1.50	3.00	1.00	3.0	5.0
M22759/4-6-*	2.00	4.00	1.25	6.0	10.0
M22759/4-4-*	3.00	6.00	1.50	6.0	10.0
M22759/4-2-*	4.00	6.00	2.00	6.0	15.0
M22759/4-1-*	6.50	10.00	2.50	6.0	15.0
M22759/4-01-*	10.00	10.00	3.00	10.0	20.0
M22759/4-02-*	10.00	18.00	4.00	10.0	25.0

1/ Also for bend tests after immersion.

REQUIREMENTS:

Temperature rating: 200°C (392°F) max conductor temperature.

Voltage rating: 600 volts (rms) at sea level.

Spark test of primary insulation: Not required.

Impulse dielectric test: 8.0 kilovolts (peak), 100 percent test.

Insulation resistance: 5,000 megohms for 1000 ft (min).

Wrap test:

Mandrel test required - no cracking.

Dielectric test after mandrel wrap, 2500 volt (rms), 60Hz.

Blocking: 200 $\pm 2^\circ\text{C}$ (392 $\pm 3.6^\circ\text{F}$).

Shrinkage: 0.125 inch max at 200 $\pm 2^\circ\text{C}$ (392 $\pm 3.6^\circ\text{F}$).

Wicking:

Size 22 through 12 - Procedure II; 2.0 percent (max) weight increase, 0.750 inch (max) dye travel.

Size 10 through 00 - No requirement.

Low temperature (cold bend):

Bend temperature - $-65 \pm 2^{\circ}\text{C}$ ($-85 \pm 3.6^{\circ}\text{F}$).

Dielectric test, 2500 volts (rms), 60Hz.

Thermal shock:

Oven temperature, $200 \pm 2^{\circ}\text{C}$ ($392 \pm 3.6^{\circ}\text{F}$).

Maximum change in measurement -

Sizes 22 through 12 - 0.060 inch.

Sizes 10 through 8 - 0.100 inch.

Sizes 6 through 00 - 0.125 inch.

Flammability: Post-flame dielectric test not required.

Life cycle:

Oven temperature $250 \pm 2^{\circ}\text{C}$ ($482 \pm 3.6^{\circ}\text{F}$).

Dielectric test, 2500 volts (rms), 60Hz.

Dielectric test after immersion: 2500 volts (rms), 60Hz.

Humidity resistance: 5,000 megohms for 1000 ft, min insulation resistance after humidity exposure.

Surface resistance:

Sizes 22 through 12 - 500 megohm-inches (min), initial and final readings.

Sizes 10 through 00 - No requirement.

Smoke: 200°C (392°F).

Acid resistance:

Required.

Dielectric test, 2500 volts (rms), 60Hz.

Color: In accordance with MIL-STD-104, Class 1; white preferred.

Color striping or banding durability: 250 cycles (500 strokes) (min), 500 grams weight. Test not required if marking is under clear FEP jacket.

Identification durability: 125 cycles (250 strokes) (min), 500 grams weight. Test not required if marking is under clear FEP jacket.

Wire length requirements: Schedule A.

Supersession data: The wire of this specification sheet, by part number, replaces and supersedes the wire of MS90294(AS) (canceled) in accordance with table III.

TABLE III. SUPERSESSION BY PART NUMBER.

Part number MS90294 (AS)	Part number MIL-W-22759/4
MS90294-22-*	M22759/4-22-*
MS90294-20-*	M22759/4-20-*
MS90294-18-*	M22759/4-18-*
MS90294-16-*	M22759/4-16-*
MS90294-14-*	M22759/4-14-*
MS90294-12-*	M22759/4-12-*
MS90294-10-*	M22759/4-10-*
MS90294-8-*	M22759/4-8-*
MS90294-6-*	M22759/4-6-*
MS90294-4-*	M22759/4-4-*
MS90294-2-*	M22759/4-2-*
MS90294-1-*	M22759/4-1-*
MS90294-01-*	M22759/4-01-*
MS90294-02-*	M22759/4-02-*

AEROSPACE STANDARD

WIRE, ELECTRIC, FLUOROPOLYMER-INSULATED,
TFE-GLASS-FEP, MEDIUM WEIGHT, SILVER-COATED
COPPER CONDUCTOR, 600-VOLT

AS22759/4